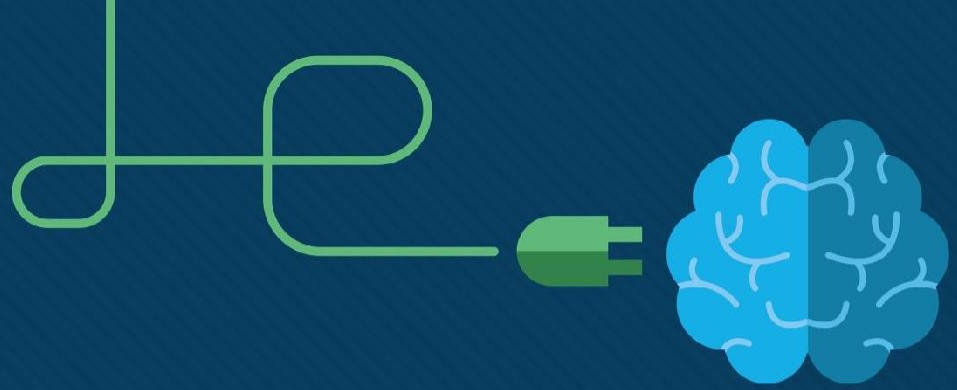


Temel Router Yapılandırması

CCNA1

Introduction to
Networks v7.0 (ITN)

Basic Router Configuration Steps

- Configure the device name.
- Secure privileged EXEC mode.
- Secure user EXEC mode.
- Secure remote Telnet / SSH access.
- Encrypt all plaintext passwords.
- Provide legal notification and save the configuration.

```
Router(config)# hostname hostname
```

```
Router(config)# enable secret password
```

```
Router(config)# line console 0
Router(config-line)# password password
Router(config-line)# login
```

```
Router(config)# line vty 0 4
Router(config-line)# password password
Router(config-line)# login
Router(config-line)# transport input {ssh | telnet}
```

```
Router(config)# service password encryption
```

```
Router(config)# banner motd # message #
Router(config)# end
Router# copy running-config startup-config
```

Basic Router Configuration Example

- Commands for basic router configuration on R1.
- Configuration is saved to NVRAM.

```
R1(config)# hostname R1
R1(config)# enable secret class
R1(config)# line console 0
R1(config-line)# password cisco
R1(config-line)# login
R1(config-line)# line vty 0 4
R1(config-line)# password cisco
R1(config-line)# login
R1(config-line)# transport input ssh telnet
R1(config-line)# exit
R1(config)# service password encryption
R1(config)# banner motd #
Enter TEXT message. End with a new line and the #
**********************************************
WARNING: Unauthorized access is prohibited!
**********************************************
R1(config)# exit
R1# copy running-config startup-config
```

10.2 Configure Interfaces

Configure Router Interfaces

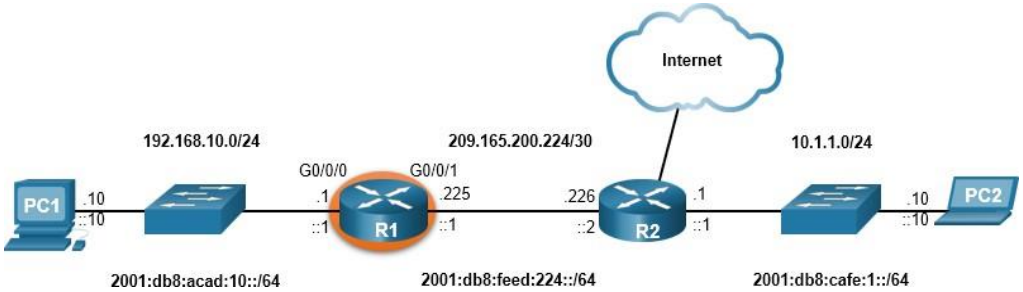
Configuring a router interface includes issuing the following commands:

```
Router(config)# interface type-and-number
Router(config-if)# description description-text
Router(config-if)# ip address ipv4-address subnet-mask
Router(config-if)# ipv6 address ipv6-address/prefix-length
Router(config-if)# no shutdown
```

- It is a good practice to use the **description** command to add information about the network connected to the interface.
- The **no shutdown** command activates the interface.

Configure Router Interfaces Example

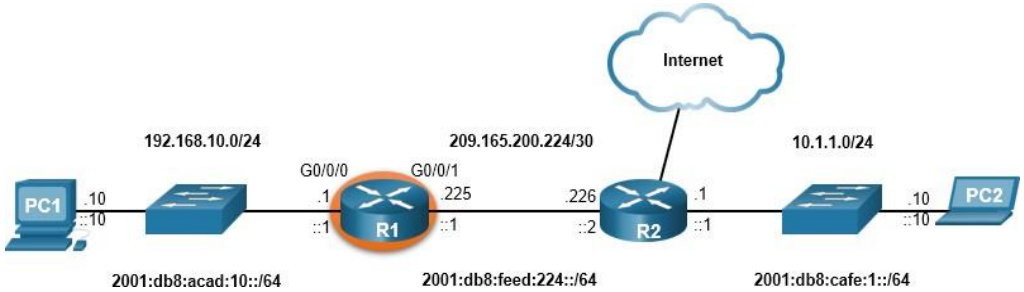
The commands to configure interface G0/0/0 on R1 are shown here:




```
R1(config)# interface gigabitEthernet 0/0/0
R1(config-if)# description Link to LAN
R1(config-if)# ip address 192.168.10.1 255.255.255.0
R1(config-if)# ipv6 address 2001:db8:acad:10::1/64
R1(config-if)# no shutdown
R1(config-if)# exit
R1(config)#
*Aug  1 01:43:53.435: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/0, changed state to down
*Aug  1 01:43:56.447: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/0, changed state to up
*Aug  1 01:43:57.447: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0,
changed state to up
```

Configure Router Interfaces Example (Cont.)

The commands to configure interface G0/0/1 on R1 are shown here:




```
R1(config)# interface gigabitEthernet 0/0/1
R1(config-if)# description Link to R2
R1(config-if)# ip address 209.165.200.225 255.255.255.252
R1(config-if)# ipv6 address 2001:db8:feed:224::1/64
R1(config-if)# no shutdown
R1(config-if)# exit
R1(config)#
*Aug  1 01:46:29.170: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/1, changed state to down
*Aug  1 01:46:32.171: %LINK-3-UPDOWN: Interface GigabitEthernet0/0/1, changed state to up
*Aug  1 01:46:33.171: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/1,
changed state to up
```

Verify Interface Configuration

To verify interface configuration use the **show ip interface brief** and **show ipv6 interface brief** commands shown here:

```
R1#  show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0/0   192.168.10.1    YES manual up                    up
GigabitEthernet0/0/1   209.165.200.225 YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down
```

```
R1#  show ipv6 interface brief
GigabitEthernet0/0/0       [up/up]
    FE80::201:C9FF:FE89:4501
    2001:DB8:ACAD:10::1
GigabitEthernet0/0/1       [up/up]
    FE80::201:C9FF:FE89:4502
    2001:DB8:FEED:224::1
Vlan1                      [administratively down/down]
    unassigned
R1#
```

Configure Verification Commands

The table summarizes show commands used to verify interface configuration.

Commands	Description
`show ip interface brief` `show ipv6 interface brief`	Displays all interfaces, their IP addresses, and their current status.
`show ip route` `show ipv6 route`	Displays the contents of the IP routing tables stored in RAM.
`show interfaces`	Displays statistics for all interfaces on the device. Only displays the IPv4 addressing information.
`show ip interfaces`	Displays the IPv4 statistics for all interfaces on a router.
`show ipv6 interfaces`	Displays the IPv6 statistics for all interfaces on a router.

Configure Verification Commands (Cont.)

View status of all interfaces with the **show ip interface brief** and **show ipv6 interface brief** commands, shown here:

```
R1# show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0/0   192.168.10.1    YES manual up                    up
GigabitEthernet0/0/1   209.165.200.225 YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down
R1#
```

```
R1# show ipv6 interface brief
GigabitEthernet0/0/0       [up/up]
    FE80::201:C9FF:FE89:4501
    2001:DB8:ACAD:10::1
GigabitEthernet0/0/1       [up/up]
    FE80::201:C9FF:FE89:4502
    2001:DB8:FEED:224::1
Vlan1                      [administratively down/down]
    unassigned
R1#
```

Configure Verification Commands (Cont.)

Display statistics for all interfaces with the **show interfaces** command, as shown here:

```
R1# show interfaces gig0/0/0
GigabitEthernet0/0/0 is up, line protocol is up
  Hardware is ISR4321-2x1GE, address is a0e0.af0d.e140 (bia   a0e0.af0d.e140)
  Description: Link to LAN
  Internet address is 192.168.10.1/24
  MTU 1500 bytes, BW 100000 Kbit/sec, DLY 100 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive not supported
  Full Duplex, 100Mbps, link type is auto, media type is RJ45
  output flow-control is off, input flow-control is off
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:01, output 00:00:35, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/375/0/0 (size/max/drops/flushes); Total output      drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     1180 packets input, 109486 bytes, 0 no buffer
     Received 84 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles

<output omitted>

R1#
```

Configure Verification Commands (Cont.)

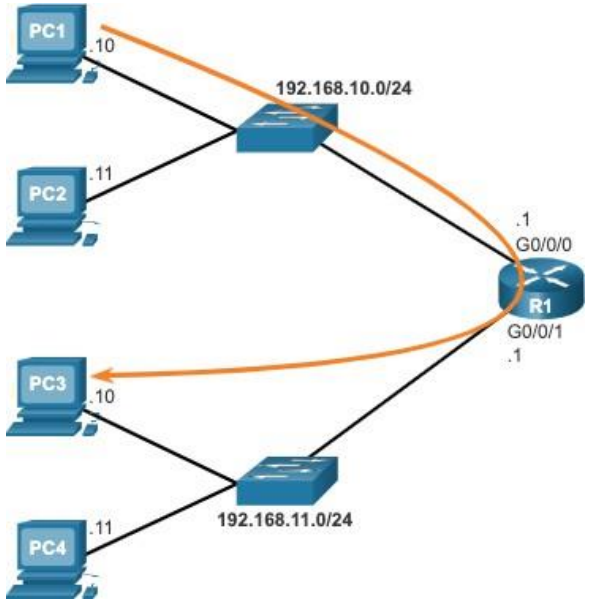
Display IPv4 statistics for router interfaces with the **show ip interface** command, as shown here:

```
R1# show ip interface g0/0/0
GigabitEthernet0/0/0 is up, line protocol is up
  Internet address  is  192.168.10.1/24
  Broadcast address is 255.255.255.255
  Address determined by setup command
  MTU is 1500 bytes
  Helper address is not set
  Directed broadcast forwarding is disabled
  Outgoing Common access list is not set
  Outgoing access list is not set
  Inbound Common access list is not set
  Inbound  access list is  not  set
  Proxy ARP is enabled
  Local Proxy ARP is disabled
  Security level is default
  Split horizon is enabled
  ICMP redirects are always sent
  ICMP unreachables are always sent
  ICMP mask replies are never sent
  IP fast switching is enabled
  IP Flow switching is disabled

<output omitted>

R1#
```

10.3 Configure the Default Gateway

Default Gateway on a Host

- The default gateway is used when a host sends a packet to a device on another network.
- The default gateway address is generally the router interface address attached to the local network of the host.
- To reach PC3, PC1 addresses a packet with the IPv4 address of PC3, but forwards the packet to its default gateway, the G0/0/0 interface of R1.

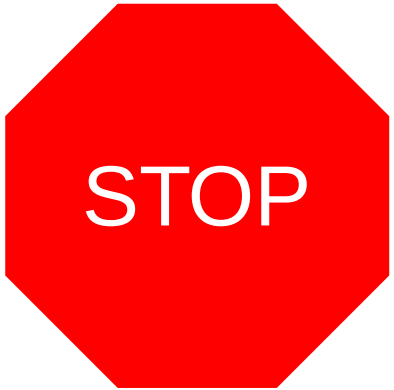


Note: The IP address of the host and the router interface must be in the same network.

Default Gateway on a Switch

- A switch must have a default gateway address configured to remotely manage the switch from another network.
- To configure an IPv4 default gateway on a switch, use the **ip default-gateway** *ip-address* global configuration command.

MEDIA IS WORKING ON A CORRECTED VERSION OF THE GRAPHIC FROM 10.3.2.
IT IS WRONG ON AR, AND ON THE GLOBAL BUG LIST



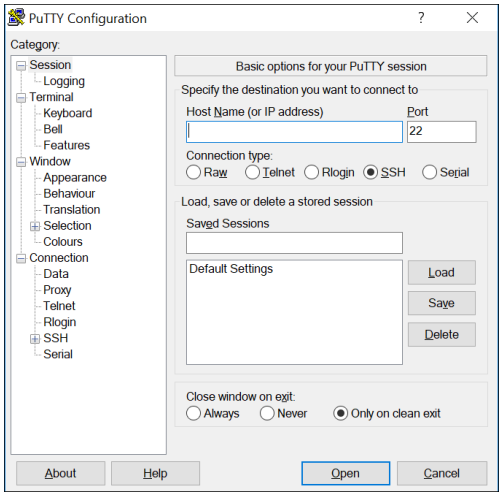
New Terms and Commands

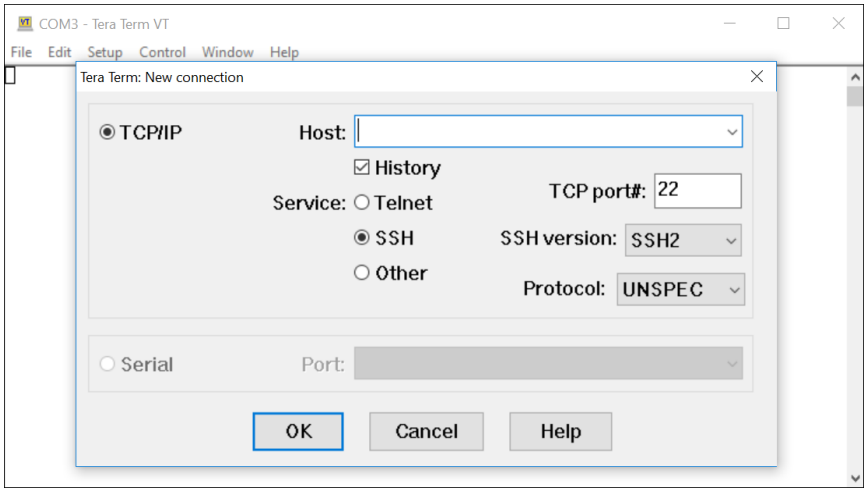
- **show ip interface brief**
- **show ipv6 interface brief**
- **show interfaces**
- **show ip interface**
- **show ipv6 interface**
- **ip default-gateway**

TELNET Yapılandırılması

Cisco IOS Access Terminal Emulation Programs

- Terminal emulation programs are used to connect to a network device by either a console port or by an SSH/Telnet connection.
- There are several terminal emulation programs to chose from such as PuTTY, Tera Term and SecureCRT.





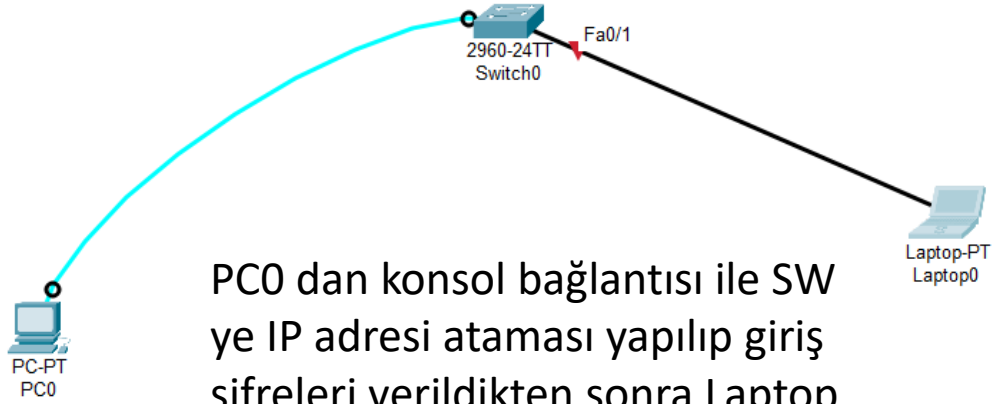
Telnet bağlantısı için:

- Varsayılanda hem TELNET hem SSH açıktır.

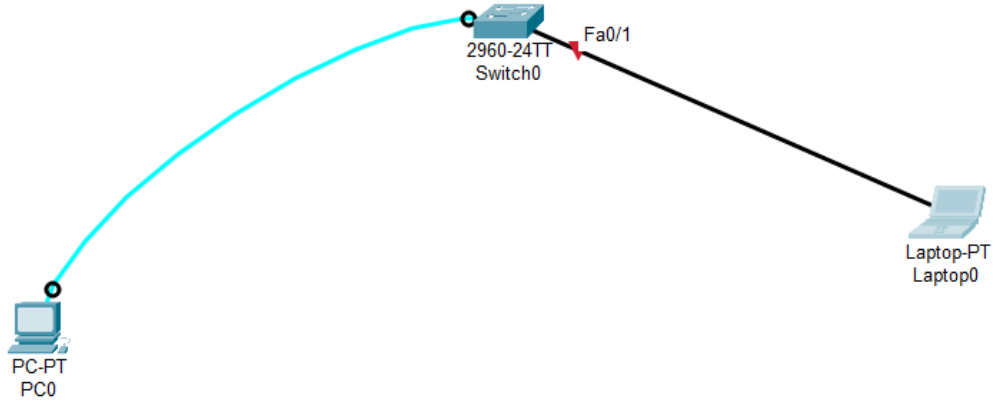
Transport input

- all
- none
- telnet
- ssh

Telnet ve SSH bağlantı için giriş şifresi mutlaka olmalı. Ayrıca enable şifresi konulmamışsa uzaktan erişime izin vermiyor.

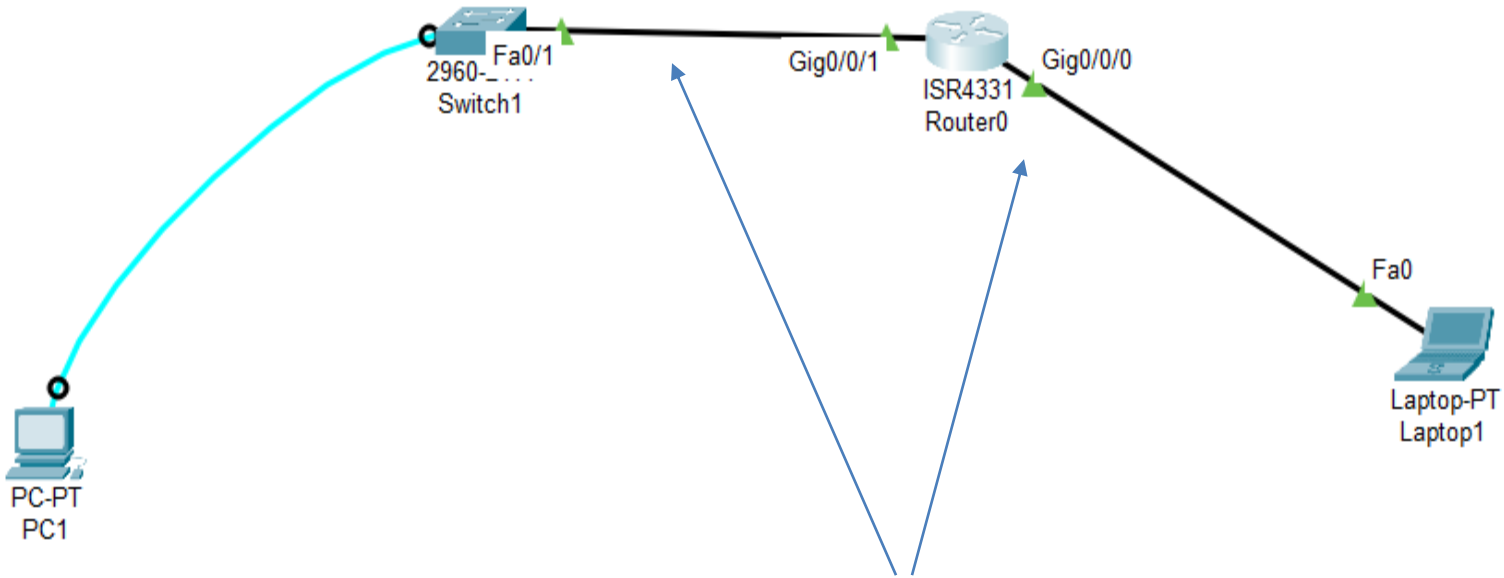


PC0 dan konsol bağlantısı ile SW ye IP adresi ataması yapılıp giriş şifreleri verildikten sonra Laptop üzerinden TELNET ile bağlantı kurulabilir.



SSH bağlantısı için aşağıdaki işlemler yapılmalıdır.

- SW ye isim ataması yapılmalı
- Domain name tanımlanmalı (**ip domain-name** *ali.net*)
- Şifreleme işlemi yapılmalı (**crypto key generate rsa**)
- Uzaktan erişim portlarına şifre konulup etkinleştirilmeli
- SW e IP ataması gerçekleştirilmeli



Laptop ile SW ayrı network oldukları için SW ye erişim için Default Gateway ataması yapılmalıdır.